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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,643	05/02/2001	Yuzo Kano	19036/37333	6598

4743 7590 01/15/2003

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EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT PAPER NUMBER

1725

DATE MAILED: 01/15/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-12

<b>Office Action Summary</b>	<b>Application No.</b> 09/847,643	<b>Applicant(s)</b> KANO ET AL.	
	<b>Examiner</b> Lynne Edmondson	<b>Art Unit</b> 1725	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10/22/02.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

1. Claims 5, 13, 16, 18-23, 27-29, 32-34 and 36-39 are rejected under 35

U.S.C. 102(b) as being anticipated by Heideman et al. (USPN 6053391).

Heideman teaches a spot joining tool and method for joining large metal panels (col 1 lines 10-26) comprising the steps of rotating a joining tool having a pin around an axis with the pin pressed against the lapped works (col 2 lines 55-65) and inserted into the predetermined joint spot, stirring and fusing the lapped works and thereafter pulling out the tool (col 5 lines 54-67). The members have flat faces against which the tool presses exerting a force against the lapped works (figure 4) and are disposed on a flat receiving member (backing plate) (col 5 lines 37-67). The joining device is a gun on the wrist of an articulated robot (col 4 lines 20-35). The pin comprises a screw (threaded member, col 4 lines 51-61) with a raised central portion descending from an inverted conical shape with rounded corners as shown in figures 2 and 3 but can take a variety of shapes (col 3 lines 36-62). See also Heideman claims 1-3 and 8.

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2. Claims 18, 24-27, 30, 31, 35, 39 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by White et al. (USPN 6247633 B1).

White teaches a spot joining tool and method for joining large metal panels of cars comprising the steps of rotating a joining tool having a pin around an axis with the pin pressed against the lapped works and inserted into the predetermined joint spot, stirring and fusing the lapped works and thereafter pulling out the tool (col 3 line 47 – col 4 line 11 and col 2 lines 19-53). The pin comprises a raised central portion descending from a flat shoulder portion at a right angle (figure 2 and col 2 lines 54-67). See also White claims 1 and 2.

3. Claims 5-15, 27, 30, 31 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson (USPN 6302315 B1).

Thompson teaches a spot joining method comprising the steps of rotating a joining tool having a pin around an axis with the pin pressed against positioned works and inserted into the predetermined joint spot, stirring and fusing the works and thereafter pulling out the tool (col 2 lines 23-40). The joining device comprises an induction motor (col 4 lines 46-52) and a servo motor (col 5 line 42 – col 6 line 3 and col 4 lines 53-67) which are used to rotate the tool and move it along an axis. The motors are provided on a frame (22) comprising a moveably attached linear guide (50), attached to a rail (64) which is parallel the tool axis (col 4 lines 18-67). A screw shaft comprising a ball screw (56) is mounted on the frame and driven by a motor with a nut mounted on the guide shaft (col 4 lines 39-52, col 5 lines 1-4 and col 10 line 53 – col 11

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line 15). See also figure 1 and Thompson claims 1, 2 and 13. The device comprises a receiving member (26) having a flat surface and columns (109) opposite the joining tool (figure 4 and col 6 lines 5-24). The lower part of the frame forms an L shape (figure 1). Parts are metal (col 1 lines 10-26). Figure 5 shows the pin (94) having a raised central portion descending from a column shaped shoulder having cylindrical end face at a right angle. See Thompson claims 1, 2, and 7-14.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17, 24-26 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heideman et al. (USPN 6053391).

Heideman teaches a spot joining tool and method for joining large metal panels (col 1 lines 10-26) comprising the steps of rotating a joining tool having a pin around an axis with the pin pressed against the lapped works (col 2 lines 55-65) and inserted into the predetermined joint spot, stirring and fusing the lapped works and thereafter pulling out the tool (col 5 lines 54-67). The members have flat faces against which the tool presses exerting a force against the lapped works (figure 4) and are disposed on a flat receiving member (backing plate) (col 5 lines 37-67). The joining device is a gun on the

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wrist of an articulated robot (col 4 lines 20-35). The large panels which do not have size limitations (col 1 lines 10-26) would encompass the instantly claimed automobile and rail panels. The pin comprises a screw (threaded member, col 4 lines 51-61) with a raised central portion descending from an inverted conical shape with rounded corners as shown in figures 2 and 3 but can take a variety of shapes (col 3 lines 36-62).

However, there is no disclosure or manual operation.

It would have been obvious to one of ordinary skill in the art at the time of the invention that manual operation of the welding gun is an obvious variation of automated operation of the gun by a robot particularly for large panel operations (Heideman, col 1 lines 10-25) such as the welding of automobile or railway car panels.

5. Claims 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson (USPN 6302315 B1).

Thompson teaches a spot joining method comprising the steps of rotating a joining tool having a pin around an axis with the pin pressed against positioned works and inserted into the predetermined joint spot, stirring and fusing the works and thereafter pulling out the tool (col 2 lines 23-40). The joining device comprises an induction motor (col 4 lines 46-52) and a servo motor (col 5 line 42 – col 6 line 3 and col 4 lines 53-67) which are used to rotate the tool and move it along an axis. The motors are provided on a frame (22) comprising a moveably attached linear guide (50), attached to a rail (64) which is parallel the tool axis (col 4 lines 18-67). A screw shaft comprising a ball screw (56) is mounted on the frame and driven by a motor with a nut

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mounted on the guide shaft (col 4 lines 39-52, col 5 lines 1-4 and col 10 line 53 – col 11 line 15). See also figure 1 and Thompson claims 1, 2 and 13. The device comprises a receiving member (26) having a flat surface and columns (109) opposite the joining tool (figure 4 and col 6 lines 5-24). The lower part of the frame forms an L shape (figure 1). Parts are metal (col 1 lines 10-26). Figure 5 shows the pin (94) having a raised central portion descending from a column shaped shoulder having cylindrical end face at a right angle. See Thompson claims 1, 2, and 7-14. However, the reference shows a butt joining method.

It would have been obvious to one of ordinary skill in the art at the time of the invention that lap welding is an obvious variation of butt welding and would be performed by the same type of tool. As workpieces are clamped to table (122), multiple sheets (30) can be stacked between the table and clamps (Thompson, figure 6). Numerous sheets are clamped such that a plurality of joints can be successively welded without handling the metal pieces and thereby provide great productivity while consistently producing high quality welding joints (Thompson, col 2 lines 43-57).

### ***Response to Arguments***

6. Regarding applicant's argument that the references teach line joining rather than spot joining, any device capable of joining a line is capable of joining a spot. Whether a spot (single area) or line is joined is dependent upon the movement of the tool and discretion of the operator.

7. Heideman teaches means for movement in both vertical and horizontal directions. To form a spot joint, one would move in only the vertical direction. While the device offers the freedom of forming lines, the horizontal movement can be stopped. When parts are lapped, the shoulder and pin press into at least the uppermost workpiece. A concave portion is shown in figure 4.

Therefore the 102 rejection of claims 5, 13, 16, 18-23, 27-29, 32-34, 36 and 37 as anticipated by Heideman stands and includes new claims 38 and 39. The 103 rejection of claims 17 and 24-26 as obvious over Heideman also stands and includes new claim 40.

8. White teaches means for movement in both vertical and horizontal directions. To form a spot joint, one would move in only the vertical direction. While the device offers the freedom of forming lines, the horizontal movement can be stopped. When parts are lapped, the shoulder and pin press into at least the uppermost workpiece. Although not shown in the figures, the nature of the process and shape of the pin will form a concave recess (half of which is shown in figure 2). Edge 25 of the shoulder presses into the workpiece.

Therefore the 102 rejection of claims 18, 24-27, 30, 31 and 35 as anticipated by White stands and includes new claims 39 and 40.



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9. Thompson teaches means for movement in both vertical and horizontal directions. To form a spot joint, one would move in only the vertical direction. While the device offers the freedom of forming lines, the horizontal movement can be stopped.

10. In response to applicant's argument that Thompson teaches a butt welding process rather than a lap welding process, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Therefore the 102 rejection of apparatus (tool/device) claims 5-15, 27, 30, 31, 33 and 35 as anticipated by Thompson stands.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okamura et al. (USPN 6299050 B1, automobile and rail bodies, motors, ball screw, frame, guide), Aota et al. (USPN 6050474, auto and rail bodies, screw), Thomas et al. (USPN 54063170, motors and tool), Kinton et al. (USPN 6050475, motors, shoulder shape, frame, guide), Midling et al. (USPN 5813592,

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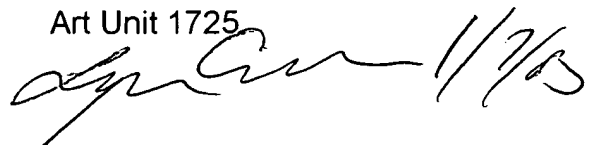
shoulder shape), Rosen et al. (USPN 6045027, lap and pressure), Heideman et al. (USPN 6053391) and Wykes (USPN 5697544, multiple motors, shoulder).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (703) 306-5699. The examiner can normally be reached on M-F from 7-4 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7118 for regular communications and (703) 305-7115 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Lynne Edmondson  
Examiner  
Art Unit 1725

A handwritten signature in black ink, appearing to read 'Lynne Edmondson', followed by the date '1/7/03'.

LRE  
January 7, 2003